BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

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IN THE MATTER OF RESOURCE PLANNING AND PROCUREMENT	)	**Docket No. E-00000V-19-0034**

Western Resource Advocates' (WRA) Comments on Ascend Analytics (Ascend) Redacted Revised Report

On August 13, 2021, Commission Staff filed the Ascend Analytics Redacted Revised Report: Arizona Utility Integrated Resource Plan Review.[1] The report includes the results of their analysis of the proposed energy rules and the Integrated Resource Plans (IRP) for Arizona Public Service (APS) and Tucson Electric Power (TEP). WRA has identified significant deficiencies with this report, which, to its credit, Ascend itself acknowledges. In short, the report was required to be completed too quickly, and with too many constraints, to be relied upon for long-term planning purposes.

I. REPORT DEFICIENCIES

a. Cost Data is Speculative

The Ascend report states, "[a]s with any very long-range study, the results in the distant future must be taken somewhat with a grain of salt." [2] The Ascend report's projection of costs out to 2040 is highly speculative, and even more so for the 2050 cost projections. They go on to say, "cost estimates beyond 2030 are very speculative and should be taken as rough estimates."[3] They continue with, "[a]s mentioned earlier these outputs rely on assumptions for future technology costs and market prices that are extremely uncertain when projecting out to 2050."[4] This deficiency makes the assumed costs for the long-term dates in the study unreliable. However, the near-term numbers are more reliable and show zero or only modest increases in the price of energy, even without the inclusion of potential benefits. The data tables in the report show for 2035, TEP may

[1] *Ascend Analytics Redacted Revised Report: Arizona Utility Integrated Resource Plan Review*, 8.13.2021, *available at* https://docket.images.azcc.gov/E000015107.pdf?i=1629314782032.
[2] *Id.*at 8.
[3] *Id.* at 58.
[4] *Id.* at 64.

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have as low as 0% increase in revenue requirements, average rate impacts, and average monthly residential bill impacts.[5]

b. Report Only Looks at Costs, Not Benefits

The most concerning deficiency in the report is the lack of consideration of any of the benefits that would be accrued from the decarbonization portfolios. Climate change poses both direct and indirect costs to Arizonans, from wildfire impact costs to higher healthcare expenses. Climate change can also directly impact the reliability and cost of the electricity system itself. Yet the Ascend report does not consider any of the avoided costs or benefits of a shift to 100% carbon dioxide (CO_2) emissions reductions.

A January 2021 analysis prepared by Strategen on behalf of the Southwest Energy Efficiency Project (SWEEP) shows potential benefits of 100% carbon free energy of up to $2 billion for Arizona.[6] These benefits come from a significant expansion of solar with battery storage, continued investment in energy efficiency, continued operation of Palo Verde Nuclear Generating Station, high quality wind resources from New Mexico, a modest decline in natural gas generation, and retirement of uneconomic coal resources.[7]

Arizonans are already seeing the impacts of climate change, from record heat to intense wildfires, erratic weather patterns, prolonged drought, and toxic air pollution. The Intergovernmental Panel on Climate Change (IPCC) released the first installment of its Sixth Assessment Report (AR6) on August 9, 2021.[8] AR6 noted that we still have a small window of time to act and take steps that will help reduce greenhouse gas emissions and avoid the worst impacts of the climate crisis. Clean Air Task Force (CATF) summarizes both global and regional risks should climate change go unmitigated in their most recent Energy Rules filing.[9] CATF describes in detail risks related to rising temperatures, rising energy bills, heat related death and human health, additional water scarcity and desertification, wildfires and tree loss, tribal communities and vulnerable populations being most impacted, and crop yield declines and other agriculture issues.

The benefits of addressing climate change, which the report does not include, can be quantified by including the social cost of carbon. APS used carbon prices for 2025 ranging from zero to $19 per ton.[10] Meanwhile, in March of 2021, the Biden administration priced the social cost of carbon to be approximately $51 per ton.[11]

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[5] *Id.* at 4.
[6] Strategen, *AZ Energy Rules Analysis*, Docket No. E-00000V-19-0034, 1.21.2021, *available at* https://docket.images.azcc.gov/E000011308.pdf?i=1629314782032.
[7] *Id.* at 7.
[8] IPCC, 2021: Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press, *available at* https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf.
[9] *Clean Air Task Force's Comments on the Notice of Supplemental Proposed Rulemaking*, Docket No. RU-00000A-18-0284, 8.19.2021, *available at* https://docket.images.azcc.gov/E000015217.pdf?i=1629790224564.
[10] Ascend Report at 34.
[11] Scientific American, *Cost of Carbon Pollution Pegged at $51 a Ton*, 1.1.2021, *available at* https://www.scientificamerican.com/article/cost-of-carbon-pollution-pegged-at-51-a-ton/.

c. "Least-Cost" Portfolio is also High Risk

If federal regulations begin to limit CO_2 emissions, the Ascend report's "least-cost" scenario may create expensive stranded assets in the form of natural gas plants. This "least-cost" portfolio also does not alleviate concerns about having a diverse generation fleet in Arizona, which is necessary to maintain reliability. In their report, Ascend also states:

> The "Least-Cost"' portfolio is not easy to define without the time to perform a full capacity expansion analysis. In hand-designing the portfolios, we interpreted the "Least-Cost" portfolios as having the implicit assumption that traditional resources such as natural gas power plants are "least-cost" for providing firm capacity.[12]

Due to the cost deficiencies mentioned above and the lack of capacity expansion modeling, it is not even clear that the "least-cost" scenario is actually the least-cost option. Due to the lack of knowledge and understanding about future pricing, there is no way to guarantee that natural gas power plants are least cost. In addition, this study does not adequately account for the social cost of carbon.

d. Utility Modeling Concerns

In addition to the questionable cost assumptions related to the "least-cost" portfolio, Ascend also points out that within the TEP and UNSE proposals:

> [T]he levelized cost of energy listed for solar and wind resources appears to be significantly higher than typical [Power Purchase Agreement] PPA prices available in the region, which are in the low $20s per MWh. Given the potential for extensions of the investment tax credit (ITC), extension of the ITC to standalone storage, and safe-harbor provisions that allow resources coming online in later years to still qualify for earlier (higher) levels of the ITC, PPA prices will likely continue to be low when UNSE begins procuring resources. Ascend recommends that the commission ensure that all ownership structures are considered during resource procurement processes, with ownership-agnostic, least-cost options being pursued.[13]

The report also identified serious deficiencies in the APS modeling. First, it included no sensitivity to market prices. Second, APS did not adequately model its high renewable standards, claiming that its modeling software was unable to correctly model the more diverse resources. Ascend says, "[t]his is a critical flaw in the APS modeling software. High levels of renewable resources in a model add complexity but should not be a barrier to implementing a capacity expansion model."[14] Third, APS assumed that Four Corners Generating Station would remain part of its fleet until 2031, and showed no alternative retirement scenarios or the cost implications of earlier coal plant retirement. Ascend states,

> [i]n our opinion, it is likely true that the must-run constraint on Four Corners does not result in the least-cost portfolio. We also believe that APS should have shown

[12] Ascend Report at 55.
[13] *Id.* at 44.
[14] *Id.* at 33.

> a scenario in which Four Corners is retired prior to 2031 as a comparison point with the three proposed portfolio pathways.[15]

Ascend calls this, "shortsighted given the frequency of coal closures in the [Western Electricity Coordinating Council] WECC, mostly driven by economics."[16] The assumption that Four Corners is listed as must-run in the model is also inaccurate, based on APS's announcement that it will run Four Corners seasonally. APS has committed that "[Four Corners] will switch to seasonal operations in fall 2023, so that both Units 4 and 5 will be in service only during the summer months (June through October), and only one of the Units will be in service the remaining months."[17] The Ascend report continues,

> [f]inally, the Technology Agnostic plan that APS showed as a benchmark provided no real value since it was not a realistic option for APS to build. Future IRPs should use a benchmark that meets minimum policy goals for clean energy or carbon emissions and show the least cost solution to meet the planning requirements.[18]

Ascend points out another flaw of the modeling, using hourly production cost models instead of five-minute data, which would better illustrate the value of flexible resources, like batteries.

> Batteries provide flexible capacity which can capture additional revenue in the EIM by ramping up and down in response to five-minute EIM prices. Real-time prices at the five-minute time step tend to be much more volatile than hourly prices, meaning that EIM prices will have large price spikes lasting a short period along with more frequent negative prices. Additionally, EIM access provides the ability to sell excess solar generation in the middle of the day which makes it an important aspect to APS operation that is neglected in hour models.[19]

In addition, batteries can respond to changes in dispatch faster and more accurately than conventional generation.

II. RECOMMENDATIONS

Ascend provided a set of recommendations the Commission should take to obtain adequate information for decision making. While these actions need not stand in the way of finalizing the pending IRPs or other related dockets, they are important considerations for future IRPs. WRA recommends including not only costs of implementation, but also considerations of avoided costs along with other benefits, both direct and indirect, to obtain a true cost-benefit analysis.

III. CONCLUSION

While the long-term cost assumptions of the Ascend study are highly speculative, the near-term numbers are reliable and show only modest, negligible increases in energy costs for Arizona while providing substantial economic, environmental, and reliability benefits. The Commission has the

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[15] *Id.* at 37.
[16] *Id.* at 41.
[17] *Recommended Opinion and Order*, Docket No. E-01345A-19-0236, 8.2.2021, p.112, *available at* https://docket.images.azcc.gov/E000014911.pdf?i=1629999500005.
[18] Ascend Report at 41-42.
[19] *Id.*at 42.

ability to set Arizona in a direction of cleaner air and cleaner water, along with cheaper, more reliable power. WRA has previously filed comments in this docket and continues to recommend that the Commission move forward with acknowledging the 2020 IRPs.[20]

Submitted this 3rd day of September 2021.

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[20] Comments of Western Resource Advocates on the 2020 Final Integrated Resource Plans of Tucson Electric Power and Arizona Public Service, E-00000V-19-0034, 10.15.2020, *available at* https://docket.images.azcc.gov/E000009559.pdf?i=1629314782032.